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AN EXAMINATION OF TEN VARIABLES
AND THEIR INFLUENCE ON INDUSTRIAL ABSENTEEISM

by



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A THESIS

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The undersigned certify that they have read, and
recommend to the Faculty of Graduate Studies for acceptance,
a thesis entitled
"An Examination of Ten Variables
and Their Influence on Absenteeism"
.....
.....
submitted by Robert G. Wilding
in partial fulfilment of the requirements for the degree of
Master of Business Administration ..

ABSTRACT

At a recent American Management Association seminar titled, "Reducing Employee Absenteeism," it was stated that the successful absenteeism programs have been those designed for a specific organization. Absenteeism is a universal problem but the variables correlated to the problem are not. The objective of this research has been to determine the variables that are correlated to absenteeism at an Ontario steel mill.

The independant variables chosen for this study are group size, age of the worker, shift work, number of dependants, seniority, overtime, incentive plans, wage rate, distance from work and the level of education among the work force. These ten variables were chosen after an extensive study of past research concerning absenteeism.

The study took place at The Algoma Steel Corporation, Ltd. in Ontario, where a total of three hundred and thirty employees were surveyed. From the data collected, graphs were constructed to illustrate trends among variables. A statistical t-test was used to determine the levels of significance. From this information, conclusions were made as to what variables affected absenteeism. It was found that seven variables had some degree of influence on absenteeism, while three variables demonstrated no meaningful relationship.

Based on the above information, recommendations were made as to what this organization should consider when

instituting a forthcoming absenteeism program.

The author would like to express his appreciation to Dr. S.M.A. Hameed, without whose guidance and direction this thesis would not have been possible. The assistance of committee members Dr. D. Cullen and Dr. G.S. Paul was also instrumental in this research. Also, the author expresses his appreciation to the management of the Employee Relations Department of The Algoma Steel Corporation, Limited for allowing this study to be undertaken.

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INTRODUCTION

The June 1967 edition of Supervisory Management reported that on an average scheduled workday, 7% of all employees at a machine manufacturing plant failed to report to work. The company estimated that excessive absences were costing the equivalent of \$2,000,000.00 in sales every year.

By instituting a program to improve supervisor-employee relations, working conditions, and other sources of job dissatisfaction, the company improved attendance to the degree of saving \$150,000.00 in six months.¹

From the above example, one can appreciate the importance and costliness of the problem created by excessive absenteeism. Some employees who do not feel quite "up to it" when they arise in the morning stay home and call in sick, while others with a similar disposition drive themselves to work. This phenomenon is recurrent in every institution that employs people. Presently, companies are hiring more secondary wage earners (e.g. housewives). A missing day's pay to one such person may not be enough to offset the urge to stay home. The same applies to the working husband, when he has a working wife.

An analysis of absenteeism reported:²

¹ "How to Reduce Absenteeism Costs", Supervisory Management, June, 1967, p. 16.

² W.E. Scheer, The Dartnell Personnel Director's Handbook, (Chicago: Dartnell Corporation, 1969), p. 871.

1. 54.8% of one and two absences follow or precede legitimate time off for holidays or weekends.
2. Absenteeism rises as jobs become more plentiful.
3. An "incredible" correlation exists between employee "illness" and major sports events.
4. Companies without "sick-pay" plans frequently have a record of fewer absences than those with such plans.

Absenteeism is more of a problem to the company than to the union because it is a direct threat to profits through delayed production schedules. A shortage of help in one department means assigning inexperienced personnel, doubling up, or working others overtime. A company in the garment industry recently analyzed its labor costs.³ It discovered that it was carrying 14% more employees than were necessary. The reason: it needed these extras to fill in for absentees. An automobile dealer was surprised recently when he analyzed his absenteeism costs. They came to almost \$300.00 for each employee per year.⁴ Also, an iron and steel fabricator figured absenteeism was costing \$150.00 per year for each employee.⁵

Even where hourly-paid employees are not paid when absent the company experiences the following losses:

1. Idle machinery and unused investment
2. Disrupted schedules

³ Peter C. Reid, "Industry's High Priced Headache," Supervisory Management, October, 1963, p. 9.

⁴ Ibid, p. 10.

⁵ Ibid, p. 11.

3. Higher inventory caused by delayed shipments
4. Spoilage costs
5. Overtime premiums paid to make up for lost time
6. Clerical expense in recording absences
7. Fringe benefit costs (Pensions, Vacations)

From the above information on costs, it would seem that costs alone may serve as a viable criterion for alleviating this most important problem. By reducing the rate of absenteeism a company is reducing the effect of these losses in terms of finance as well as company-employee relations.

This study is concerned with examining the degree of influence that the ten selected variables have on industrial absenteeism. Chapter I deals with background information concerning the company where this study took place and a listing of hypotheses which form the basis of this study. Also, past research supporting or discounting these hypotheses is examined.

Chapter II is a description of the methodology used in performing this study. The research methods used, such as the method and procedures of data collection and the testing of this data is discussed here. Chapter III deals with the analysis of the data in relation to the stated hypothesis of Chapter I. Included are the results of statistical t-tests used in testing the level of significance, as well as a series of graphs illustrating trends between variables. Chapter IV deals with recommendations and

conclusions formulated by the author. They are based on the results of this study and are presented to The Algoma Steel Corporation, Ltd. for consideration when implementing an absenteeism program.

CHAPTER I

PURPOSE

The purpose of this study is to examine and test ten variables which the author hypothesizes to be correlates of industrial absenteeism at The Algoma Steel Corporation, Limited. These ten variables were chosen after an extensive examination of past research concerning absenteeism. By means of statistical techniques, it will be determined if each of these variables are correlates of industrial absenteeism.

The results will be used by the company from which the necessary data have been collected for their current absenteeism program.

THE COMPANY

The Algoma Steel Corporation, Limited first produced steel in 1902 and has grown to become Canada's second largest steel mill.

Presently, four divisions constitute the company's total operations. This study was undertaken at the largest, the Steelworks Division, in Sault Ste. Marie, Ontario. Here, the employees total 8,501.⁶

More than 700 different specifications of steel are

⁶ "When? Where? What?", The Algoma Steel Corporation, Ltd., Community Relations, March 1, 1970.

produced in a wide range of products, enabling Algoma to compete for 75% of the types of steel products required in the Canadian market. The company maintains sales offices in Sault Ste. Marie, Saint John, Montreal, Toronto, Hamilton, Windsor, Winnipeg and Vancouver. Bargaining unit employees are represented by four unions at the Steelworks. The sample was drawn from the largest, Local 2251 of the United Steelworkers of America.

The Algoma Steel Corporation, Ltd. Steelworks Division is the largest employer in Sault Ste. Marie, Ontario. The city has a population of approximately 77,000 people. Of this population, only 1893 are shareholders in the company. Payroll and local purchases by Algoma employees amounted to over \$70,000,000.00 in 1969.

There are eight secondary schools in Sault Ste. Marie. The graduating students provide a ready labour market for Algoma. With this in mind it is conceivable that the majority of new employees at Algoma are of high school graduate age.

Algoma, like the majority of Canadian companies, has come to realize the importance of the problems associated with industrial absenteeism. In 1969, of the 544 warning notices distributed for disciplinary matters, 255 were a result of absenteeism. This means that 46.9% of the warning notices were because of absenteeism.

The Employee Conduct Rule book states:⁷

⁷ "Employee Conduct Rules", The Algoma Steel Corporation, Ltd., January 1, 1964, p. 3.

An employee will be considered guilty of absenteeism if he is off work without leave from his immediate supervisor. If an employee is absent, with or without leave, he must notify his supervisor of his desire to return to work. The supervisor will instruct the employee when to return.

1st offence - warning
2nd offence - time off 3 days
3rd offence - time off 5 days and final warning
4th offence - dismissal

To institute any program to alleviate absenteeism, relationships must be established. The Algoma Steel Corporation will use the results of this study in the initial stages of a corrective absenteeism program.

HYPOTHESES

1. The size of the work group, or the number of members, is correlated to the rate of absenteeism for each of its members. That is, as the size of the work group increases, so does the rate of absenteeism.
2. The age of the worker bears a direct correlation with absenteeism. As the age of the worker increases, his rate of absenteeism decreases.
3. An employee working shift work exhibits less absenteeism than the steady day-worker.
4. As an employee's wage rate increases, so does his rate of absenteeism.
5. As an employee's number of dependants increase his rate of absenteeism decreases.
6. The less seniority an employee holds, the greater his rate of absenteeism.

7. The rate of absenteeism increases as the employee accumulates more overtime.
8. The employee on an incentive plan will exhibit a greater rate of absenteeism than one who is not on such a plan.
9. The greater the distance from work, the greater the rate of absenteeism.
10. As the level of education increases, there is an increase in the rate of absenteeism.

OPERATIONAL DEFINITION OF THE VARIABLES

1. Group Size - is defined as the number of workers within a work group.
2. Rate of Absenteeism - is defined as the number of times a worker fails to report for a scheduled work shift.

For the purpose of this study, absences shall be used in the same context as used by Elton Mayo, in his study of 1944.⁸ He computed any absence of a number of consecutive days as one absence. For his purposes, it seemed wise to take figures that would minimize successive days of absence, and maximize the frequency of absences.

The terms "absences" and "absenteeism" are used synonymously throughout this study.

⁸ Elton Mayo, and George F. Lombard, Teamwork and Labor Turnover in the Aircraft Industry, (Harvard Business School, Division of Research, No. 32, 1944).

3. Age of Worker - this refers to the recorded age of the worker from his personnel file.
4. Number of Dependants - the number of persons the worker is supporting for income tax purposes. This is taken from personnel files.
5. Seniority - the number of continual years service to the company as recorded by the company.
6. Overtime - the number of hours the employee works over and above his scheduled work shifts.
7. Incentive Plans - company instituted work schemes where the employee is rewarded over and above his regular wage for increased output.
8. Distance from Work - is described as the actual distance in miles that a worker must travel from his place of residence to the work place.
9. Level of Education - is described as the recorded school level that the worker has completed (elementary, secondary, other).
10. Average Frequency of Absenteeism - is defined as the total frequency of absence divided by the number being examined.

PREVIOUS RESEARCH

A. Group Size and Absenteeism

The formal organization is composed of many informal groups which compete for its resources and rewards. Each has its own social structure and means of controlling its members.

This control is usually attained through sanctions, rewards, and penalties that are characteristic of the methods used by the larger organization.

Once a group has begun to form - that is, when there is expectation that it will meet more than once and when there is felt to be some common concern of the group as a whole - it shows many characteristics common to individuals. Its most fundamental trait is the will to survive.⁹

Why Groups Form

The question may be asked, "What motivates people to come together and form a clique or group?"

The main reason for people coming together and forming a group is that there is a publicly stated, agreed on task to be accomplished.¹⁰ For example, a group of machinists may decide that X number of units must be produced (i.e. quota setting) and it can be done through informal group action. This is not only restricted to the work situation, as clubs, social groups, and sports teams are formed in the same way.

Primary groups mediate between the individual and the larger organization and serve as the basic building

⁹Understanding How Groups Work. Adult Education Association of U.S.A., (Chicago 11, Illinois, 1955), p. 37.

¹⁰Ibid, p. 33.

blocks in the social structure.¹¹ That is, they function as a link in the hierarchy in the large organization. Groups relay the wants, needs, happiness, and disenchantment of the workers to management, and vice-versa relay the expectations and feelings of management to the members of the group.

Argyris postulates that all human behaviour in organizations, is explainable in terms of the essential opposition of the needs of the individual to the needs of the formal organization.¹² The result is the adaptation of both, and the development of informal group organizations. The behaviour of the "whole" organization results from an interaction of the three. This type of situation is probably characteristic of the formation of a union. The individual may feel that his needs are not being fulfilled and will turn to the union for its support, as he feels the union will be composed of members with the same problems as himself.

In comparing two departments in a big organization, Argyris found that one department (X), which gave free rein to its members' needs for security, recognition, and variety in turn developed warm personal relationships and high morale.¹³

¹¹E.C. Hagburg, "Correlates of Organizational Participation: An Examination of Factors Affecting Union Membership Activity," Readings on Modern Organizations, ed. A. Etzioni, (New Jersey: Prentice-Hall, 1969), p. 122.

¹²C. Argyris, "People in Organizations", Writers on Organizations, ed. D. Pugh, D. Hickson and R. Hinings, (London: Lyon Grant and Green, 1969), p. 69.

¹³C. Argyris, "Fusion of the Individual with the Organization," American Sociological Review, (Vol. 19), pp. 267 -272.

Under these conditions, there was no feeling of need for informal organizations. On the other hand, in the second department (Y), where these needs were not met, the members expressed a desire for recognition and for closer personal ties and sought them in informal ways. This resulted in small groups and cliques.¹⁴

Early in 1943, great public concern suddenly became manifest with respect to the phenomenon of so-called "absenteeism".¹⁵ At that time, Elton Mayo and his associates completed a research study of three companies involved in the metal industry in the eastern U.S.A. Their objective was to discover the reasons for excessive absenteeism in those particular companies.¹⁶ Up until this time, there had been no extensive research into this problem and Mayo's research only resulted because of the importance of these companies to the war effort.

The results of that study are as follows:¹⁷

1. The company with the lowest rate of absenteeism had schooled their foremen in the capacity to handle human situations. The foremen were taught three rules in

¹⁴Ibid

¹⁵Elton Mayo, "Absenteeism and Labour Turnover," The Social Problems of an Industrial Civilization, ed. Dr. Karl Mannheim, (London: Routledge and Kegan Paul Ltd., 1949) p. 79.

¹⁶Ibid, p. 78.

¹⁷Ibid, p. 89.

handling human problems: A - Be patient
B - Listen
C - Avoid emotional upsets

It was upon these three points that a communication system had been built. To facilitate the easier handling of human problems, the following system was developed.

2. Management had arranged for the foremen to have technical assistants, who took over routine technical functions.
3. Employees were allowed to participate in arranging "days off". By this method, pressure was exercised by the group to discourage anyone from taking unnecessary time off, and upsetting the schedule.

In 1944, Elton Mayo and George F. Lombard completed a further study on absenteeism in an aircraft assembly plant in southern California. Here the situation revealed was quite different.

Using the same research techniques of the previous study, they noted the formation of work groups.¹⁸ The smaller work groups exhibited less absenteeism than the larger work groups. Also, of the smaller work groups, there was again a division as to the rates of absenteeism. The smaller work group with the lowest absenteeism rates had a distinct type of supervision. That is, the foreman had the help of a technical assistant. A new group member was introduced to each group member and assisted until he was accustomed to the work, and the foreman had become a communication link between the work group and management.

¹⁸Supra, p. 11.

The final conclusion of their study was that the highest incidence of absenteeism was among those who are new to the work or to the plant, and who have not worked themselves into a relationship with the job and their fellow workers.¹⁹

According to a study reported in *Personnel Psychology*, by Baumgartel and Sobol, in 1959, absenteeism is higher in larger units and thus lends credence to the notion that the characteristics of larger organizational units lead to lower levels of involvement and personal satisfaction.²⁰

The prediction that larger organizational units will be characterized by higher absence rates, is based on the notion that, in large organizations, the impersonality, lack of personal freedom, and the diffuse identifications with the organization tend to reduce the attractiveness of the work situation. Therefore, absenteeism or some other form of withdrawal will result. In addition, as suggested by J.G. Smigel, in 1956, there probably are more tolerant attitudes toward taking money or time illegally from larger organizational units.²¹

In the study by Baumgartel and Sobol, where they

¹⁹ Mayo and Lombard, p. 8.

²⁰ H. Baumgartel and R. Sobol, "Background and Organizational Factors in Absenteeism", Personnel Psychology, (1959) p. 431.

²¹ J.G. Smigel, "Stealing as Related to Size of Victim Organization," American Sociological Review, XXI (1956), pp. 320 - 327.

tested plant size in relation to absenteeism at Trans World Airlines, they reported the following results:²²

The MEAN number of days absent and MEAN number of times absent were:

TABLE I

The Mean Number of Days Absent and Mean
Number of Times Absent By Location Size*

POPULATION	Smallest (4)	Small (2)	Large (3)	Largest (2)	N Total Sample
<u>TOTAL</u>					
Days	5.9	6.0	8.8	9.4	3898
Frequency (Times Absent)	3.4	3.2	5.2	5.0	3900

*Smallest: 172 - 283 employees, sample N = 251

Small: 381 - 639 employees, sample N = 298

Large: 1330 - 1554 employees, sample N = 1142

Largest: 3174 - 3205 employees, sample N = 2209

The belief that increased size may be dysfunctional was further substantiated in a study reported in Personnel Psychology in 1953. It was discovered that the way a man feels towards his supervisor and towards his work associates were the two work situation areas related to absence rates for both white and blue collar workers. Also, the relationship

²²Baumgartel and Sobol, p. 436.

between attitudes and the frequency of absence rates was found to be higher than between attitudes and man-days lost.²³

This dysfunctional aspect of size seems to be a result of individuals finding it difficult to identify with the large number of people found in typical large organizations.²⁴

Research conducted by various organizations suggest that group cohesiveness (defined as the attractiveness of the group to its members) is inversely correlated with size. Free and open communication is an essential characteristic of any effective group. A. Zaleznik has concluded that "...the smaller the group, the freer the interaction and communication between members."²⁵

B. Age and Absenteeism

Over the past years, the average age of our workforce has risen in a manner somewhat proportionate to the increased average age of our population. The main reason for this is increased medical discoveries. We should, therefore, be aware of this gradual increase. One possible effect of this gradual increase in age could be increased absenteeism due

²³H. Metzner and F. Mann, "Employee Attitudes and Absences," Personnel Psychology, (1953), p. 467.

²⁴R. Presthus, The Organizational Society, p. 30.

²⁵A. Zaleznik, Worker Satisfaction and Development, (Boston: Harvard University, Division of Research, 1956), p. 115.

to such things as more frequent and more serious illnesses. In a study by L. R. Sellett, he defined younger workers as being under 45 years of age and older workers as being over 45 years old.²⁶ The results of his study discount the supposition that absenteeism increases with age. He found that the older worker is as good or better in the matter of absenteeism than the younger worker. However, one cannot infer from this study that the older worker is healthier and therefore exhibits less absenteeism. The better attendance record may well be caused by such things as better work habits or a greater sense of responsibility.

In another study conducted at the New York Telephone Company, it was discovered that the average age of the low-absence employee was 48 years with 28 years of seniority, and the average age of the high-absence employee was 46 years with 26 years of seniority.²⁷ Although this difference may not appear to be great enough to warrant distinction, the significance is realized when it was reported that the 20 older employees surveyed had only 667 days of absence, where the younger group of 20 had a total of 24,185 days of absence.²⁸

Although there have been a limited number of studies that hypothesize that age and absenteeism have no correlation,

²⁶L.R. Sellett, "Age and Absenteeism," Personnel Journal, Vol. 43, June, 1964, p. 309.

²⁷"Sickness Absenteeism in the New York Telephone Co.," Monthly Labor Review, July 1955, p. 799.

²⁸Ibid, p. 800.

there have been many others that do prove some correlation.²⁹ The discrepancy between these studies seems to lie in methodology and what other factors are held constant. Attendance for workers over 50 years of age may not appear to be better than those of a younger age, when total days absent are shown. However, although the older worker may have longer periods of absence, his rate of absence is usually much lower than the younger worker,³⁰ and it is the frequencies of absenteeism that are most costly.

A study by Baumgartel and Sobol showed a positive correlation between age and absenteeism, but only when seniority and wage were held constant.³¹ This type of analysis presents a major requirement when analyzing absenteeism with respect to age. That is, absenteeism cannot be explained in terms of age alone, but other factors must also be considered. For example, a study reported in Occupational Psychology,³² where three firms were surveyed, showed that the frequency of absence increased with age in two plants, A and C, but had an inverse relationship in the third, B.

²⁹R. D. Shepherd and J. Walker, "Absence and Overtime in Relation to Wage and Number of Dependents", Monthly Labor Review, April, 1958, p. 403.

³⁰L.R. Bittel, What Every Supervisor Should Know, (New York: McGraw-Hill, 1968), p. 246.

³¹H. Baumgartel and R. Sobol, "Background and Organizational Factors in Absenteeism", Personnel Psychology, 1959, p. 439.

³²Robert Cooper and Roy Payne, "Age and Absence", Occupational Psychology, Vol. 39 - 40, January 1965, p. 35.

The only explanation the authors could offer was attributed to ecological differences. The two plants, A and C, were situated in a large city, while plant B was located outside the city. Therefore, a number of variables must be examined when accounting for absenteeism.

C. Wage Rates and Absenteeism

It was reported in a study by Arthur Gestenfeld that he had hypothesized that a worker on lower rates of pay would exhibit a greater rate of absenteeism.³³ The results of his study exhibited no relation between a worker's attitude towards his wage and absenteeism.

Contrary to this, a study by Shepherd and Walker in England did indicate that as the rate of pay increases, so does the rate of absenteeism.³⁴ In the same study, it was also discovered that for sickness absence, there is an increase both in shifts lost and in the frequency of absence, with increased wages. The following results from the study by Baumgartel and Sobol seem to bear this out:

³³ Arthur Gestenfeld, "Employee Absenteeism: New Insights," Business Horizons, October, 1969, p. 54.

³⁴ R.D. Shepherd and J. Walker, p. 403.

TABLE II³⁵

Relationship Between Wage and Mean Days Absent
(Blue Collar Men)

Wage Rate	\$1.05	1.20	1.35	1.50	1.65	1.80	1.95	2.10	2.25
Mean Days Absent	--	--	11.8	9.6	7.1	8.7	9.5	10.6	9.1
<hr/>									
N (Sample) -	2487								

This table may be a further indicator that higher wages do not reduce absenteeism.

D. Number of Dependants and the Rate of Absenteeism

The relationship between absence and the number of dependants has been described as U-shaped by Shepherd and Walker.³⁶ They found that workers with no dependants were frequently absent, those with two dependants rarely absent, and those with three or more dependants were frequently absent.

Workers who are young with less job responsibility are able to be absent without financial difficulties.³⁷ Those with three or more dependants have been described as those with the most overtime worked.³⁸ Also, his data was

³⁵Baumgartel and Sobol, p. 439.

³⁶R. D. Shepherd and J. Walker, p. 405.

³⁷W. N. Ruchti, "Is There an Answer for Lateness and Absenteeism," Supervisory Management, November 1967, p. 20.

³⁸Gestenfeld, p. 56.

drawn from a sample composed only of women. In this case, the majority would be secondary wage earners and the major wage earner would be responsible for the dependants.

E. Seniority and Absenteeism

In one large factory, "senior" workers, those with more than a year's service had 73 per cent more lateness and absenteeism than new workers.³⁹ This description is inadequate to the extent that it describes seniority in terms of an excess of one year's service. The study reported by Baumgartel and Sobol revealed a curvilinear relationship between seniority and absenteeism.⁴⁰ That is, workers exhibited a low absenteeism rate during early years of seniority, a higher rate in the middle years of employment, and lower absenteeism during the later years of employment.

This may be attributed to the additional responsibility that is associated with increased seniority. Being established in a work place, knowing fellow workers, knowing the job, and additional benefits that accrue with seniority (e.g. choice of holidays) may also be contributing factors.

F. Overtime and Absenteeism

It has been hypothesized that people who work heavy overtime schedules tend to be absent more often than those

³⁹W.N. Ruchti, p. 21.

⁴⁰Baumgartel and Sobol, p. 440.

who do not.⁴¹ The discussion above concerning the number of dependants and absenteeism postulated that those with three or more dependants also worked the greatest amount of overtime.⁴² Taking this information into consideration, it is assumed that the employee who works a lot of overtime is financially able to miss regular time.

Once again, the evidence seems to support the point of view that age, number of dependants, overtime, wages, etc. cannot be considered individually when determining characteristics of the chronic absentee.

G. Incentive Plans and Absenteeism

Wage-incentive plans have proven to be effective in increasing production. According to M. S. Vitelles the installation of wage-incentive plans in 48 companies in the New York area resulted in production increases from 3 to 103%.⁴³ This may be a short-run effect of wage-incentive plans, but in the long-run such dysfunctional aspects as absenteeism may result.

If a worker has to work only four days to earn a week's wages, he may feel satisfied to be absent for the fifth day. If this is the result, the wage-incentive plan

⁴¹W. N. Ruchti, p. 20.

⁴²R. D. Shepherd and J. Walker, p. 406.

⁴³M. S. Vitelles, Motivation and Morale in Industry, (New York: Norton and Company, 1953), p. 27.

may not increase production in the long-run, but foster other costly problems such as absenteeism. With the worker being absent, the company will not attain its objective of increased output.

H. Absenteeism and Distance from Work

The distance an employee resides from his place of work has been shown as a factor affecting absenteeism. J. J. Jackson found, by interviewing employees, that illness is a minor cause of absenteeism and that a lack of transportation was a major contributing factor.⁴⁴ A lack of transportation is related to distances from work, in that the closer a person is to his job, the greater are his chances of getting there. This may be done by walking, car pools, or public transportation.

Being further away from the place of work also creates hardships due to the elements. Winter weather or any bad weather may persuade the worker to become absent from a particular job.

I. Level of Education and Absenteeism

In an earlier hypothesis, the author stated that the higher the level of education, the greater the rate of absenteeism. This hypothesis was formulated from general

⁴⁴L. R. Sellet, p. 313.

conversation with Personnel Officers at Algoma Steel.⁴⁵

It is the feeling of these gentlemen that with a rising educational level, industry is forced to assign better educated employees to menial labor tasks that may offer no challenge. Under these circumstances the worker is likely to become quickly disenchanted with his position and lose his sense of responsibility with regard to attendance.

Due to the lack of published data, the hypothesis is based strictly on this premise.

L. Shift Work and Absenteeism

Shift work is viewed by most people with some degree of dissatisfaction. It may be looked at as a necessary evil with the trend towards more automation and the economic pressures towards total utilization.

Mr. Peter Taylor reported a study in the Science Journal which compared the absence rates of shift workers.⁴⁶ At the Shell Oil Refinery in England, an analysis of the records for seven years showed that these continuous shift workers had only about half as much lost time as day workers. The explanation attributed to this difference was concluded to be not in physical health or working conditions, but in

⁴⁵Interview with Personnel Officers, Algoma Steel Corp., Ltd., Sault Ste. Marie, Ontario, June, 1970.

⁴⁶Peter Taylor, "Absenteeism," Science Journal, April, 1970, p. 29.

motivation.⁴⁷

The continuous shift workers considered themselves as an "elite". They worked alone or in small groups, and had a sense of responsibility and identification with their work unknown to most day workers. Taylor also reported that these shift workers had adapted to this type of life and had come to prefer this type of shift rotation.⁴⁸ They were free for shopping, and able to indulge in such daylight hobbies as fishing and gardening.

As Taylor concluded, "(M)edically, they did catch colds and develop backaches just like the day workers, but they were much less likely to stay at home."⁴⁹

⁴⁷Ibid.

⁴⁸Ibid.

⁴⁹Ibid.

CHAPTER II

METHODOLOGY

The research strategy used in this study consisted of summarizing and presenting pertinent data and literature concerning the problem of industrial absenteeism. This information was obtained from journals, books and reports which have been published.

From this literature, hypotheses were formulated with the expectation that this case study situation would demonstrate a correlation of these variables to absenteeism.

The research techniques consisted of chronologically ordering the relevant theoretical information from 1943 to the present. From a survey of warning notices concerning absenteeism for the year 1969, three departments were chosen for study purposes. The departments were selected on the basis of skills required, the number of warning notices issued for absenteeism, whether the employees worked shift work or not, whether or not incentive plans were used, and the number of employees within each department. Within each department the sample consisted of established work groups to facilitate proving or disproving Hypothesis I.⁵⁰ Interviews were conducted with the Superintendents concerned to gain an insight into the effects of absenteeism within each department. Through these interviews knowledge was gained

⁵⁰Supra, p. 6.

into the past and present problems along with the remedies that are currently being attempted. The Superintendents were most helpful in establishing contacts for the tedious job of collecting the data.

Of the 330 employees surveyed, 100 were from the Central Maintenance Department, 88 were from the Structural Department, and 142 were from the Cokemaking Department. These three departments were chosen because they contained samples of all the characteristics required for examination in this study. The interviews conducted with departmental supervisors were conducted on an informal basis to discuss present methods of discipline concerning absenteeism.

Using the tables of data, graphs were constructed to illustrate trends between variables. With these graphs illustrating some type of trend, a "t-test" was used to examine the level of significance.⁵¹ From this test, conclusions were drawn as to which variables effect absenteeism. The method of testing consisted of dividing the sample into two groups for each variable concerned. For example, in using the t-test for Age, the first group ranged from 18 to 35 years old and the second group ranged from 36 to 65 years of age. These two groups were used to test whether or not the results happened by chance and if the results were valid, at what level of significance did they hold true.

A Multiple Regression Analysis had been used also,

⁵¹Taro Yamane, Statistics, An Introductory Analysis, (New York: Harper & Row, 1967), p. 502.

but the short time period used for study purposes introduced certain limitations. That is, from January to June 1970, a great proportion of the sample had zero frequency of absenteeism. This produced a large proportion of zeros in the dependant variable.

Data Collection

The time period chosen for this study is January 1, 1970 to June 30, 1970 inclusive. Because of a 3 month strike in 1969 and a poor system of record keeping in the past, it was decided to use the most current period of time. Although the time period of six months may be objectionable, it was the feeling of the author that this was the only time period where accurate and reliable data could be obtained.

The information for the variables: Number of Dependants, Distance from Work, Age, Seniority, and Education was obtained from company records at Algoma Steel. To simplify a classification for the variable Distance from Work, arcs were drawn on a city map with the first, arc A being 0 - 1 mile from work, the second, arc B being 1 - 2 miles from work, the third, arc C being 2 - 5 miles and the fourth, arc D being 5 or more miles from work. This grouping was made at the discretion of the author according to population density and geographical distribution.

The information for the variable Actual overtime hours was obtained from a year-to-date print-out issued by the Data Processing Department at Algoma Steel. Actual

overtime hours are the actual hours worked in excess of forty hours by each employee.

Departmental records provided the information for the variables Shift Work, Incentives, and the Frequency of Absenteeism. Shift Work and Incentives were a "yes or no" answer from a departmental official. The information for the Frequency of Absenteeism was obtained from time books in the Central Maintenance department, from departmental records in the Structural department, and from the foremen's log book in the Cokemaking department. Although reasons for absences are recorded in each department, they are ignored in this study because of their unreliability. In keeping with the previous definition of Frequency of Absences successive absences were counted as one. That is, an employee missing one day and an employee missing three consecutive days are both considered to have one absence.

The data was recorded in tabular form to facilitate easy handling and comprehension. The employees are divided into established work groups as they appear on the work schedule. This division allowed for computing the Average Frequency of Absenteeism for each group. This information was used in testing Hypothesis I.

The raw data collected are presented in Appendix A.

CHAPTER III

ANALYSIS OF DATAThe Sample

Chart I and Chart II on the following page demonstrate that the percentage of total sample is not the same as the percentage of total frequency of absences for each department. The Central Maintenance Department accounted for 30.3% of the total sample, however, they accounted for 36.5% of the total frequency of absences. The employees of this department are skilled tradesmen and account for the highest bargaining unit wage earners at Algoma Steel. These men work throughout the Steelworks in varying conditions which could range from minimal noise, heat and dirt to the extremities of these factors. All of the trades in this department require a given amount of training before recognition as a tradesman.

The Structural Mills accounted for 26.7% of the total sample, but accounted for 31.7% of the total frequency of absenteeism. In proportion to the other two departments, this area had the highest rate of absences. The members of this department work in one main area permanently. The group studied were in a rolling mill situation, where their pattern of work is established by sales requirements and the availability of steel for rolling purposes. These two factors account for the dysfunctional aspect of working there. It is common for an employee's work schedule to be revised due

CHART I

EACH DEPARTMENT AS A PERCENTAGE OF TOTAL SAMPLE

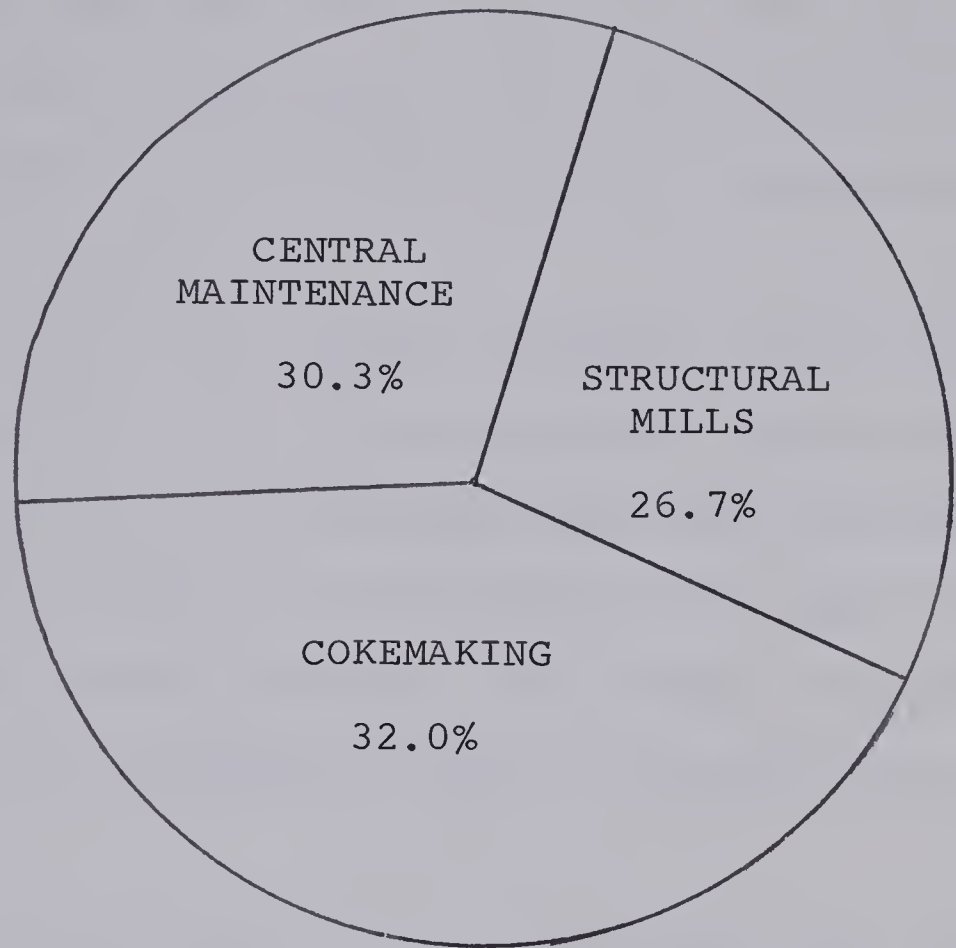
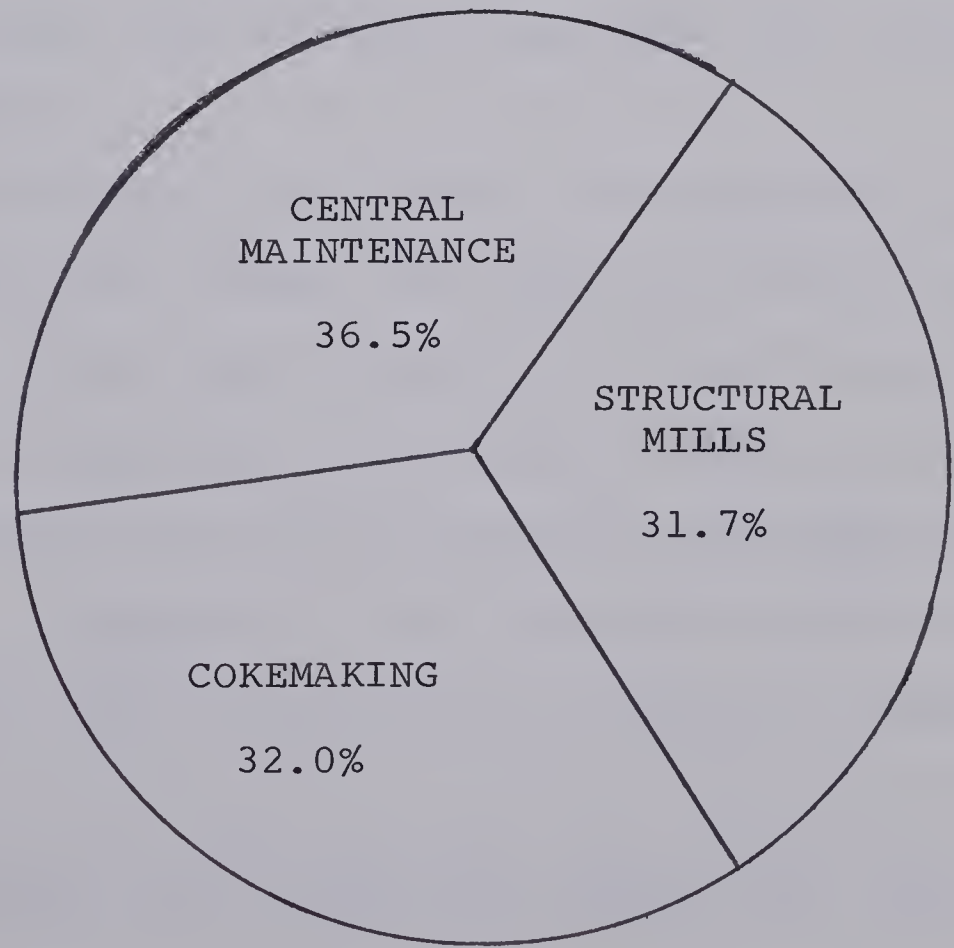


CHART II

EACH DEPARTMENT AS A PERCENTAGE OF TOTAL
FREQUENCY OF ABSENCES



to changes in the above two factors.

For example, employee A may be scheduled to work Tuesday through Saturday on a 7 a.m. to 3 p.m. day shift and he plans his week accordingly. Due to the lack of steel his schedule is changed on Thursday and he is compelled to rearrange his personal plans.

According to department personnel, this irregular scheduling accounts for absenteeism among junior employees.⁵² It is felt that the older employee with more seniority in the department has become accustomed to this type of life and will attend work as always. The younger employee seems to regard his job secondarily and will satisfy his social life first.

The working conditions in this department are relatively good in comparison to the other two. It is a repetitive type job where the work is always inside. Due to the seniority system, most of these employees work only on one type of machine.

The Cokemaking Department constituted the greatest portion of the total sample, but proportionately had the lowest share of the total frequency of absenteeism. This fact came as a surprise to the author because environmental working conditions can be described as being the worst at Algoma Steel. Employees in this department work in extreme heat year-round and are continually exposed to hazards such

⁵² Interview with Structural Mill Supervision, Algoma Steel Corporation, Ltd., Sault Ste. Marie, Ont., May 1970.

as debris in the air and gases emitted from coke-oven batteries.

The average age and the seniority of employees in this department was higher than the other two. The Coke-making department is relatively isolated from the primary steelmaking and rolling mills areas. Under this condition, employees are not influenced by the attendance habits of the other departmental employees. In the Cokemaking department, the control and recording of absences is very effective. Absences are recorded in a central location with reports available to all foremen.

In 1969 the Structural Mills accounted for the highest incidence of warning notices for absenteeism at Algoma Steel. The system of recording absences was the best of all three departments, but the department had the greatest number of younger workers.

The Central Maintenance department had no central recording system for absences. Each section of the department had its own time book with a foremen recording and issuing discipline for absenteeism.

It is believed that the total sample is comprised of employees with differing characteristics and of departments that present various environmental conditions of work.

TESTING OF HYPOTHESES

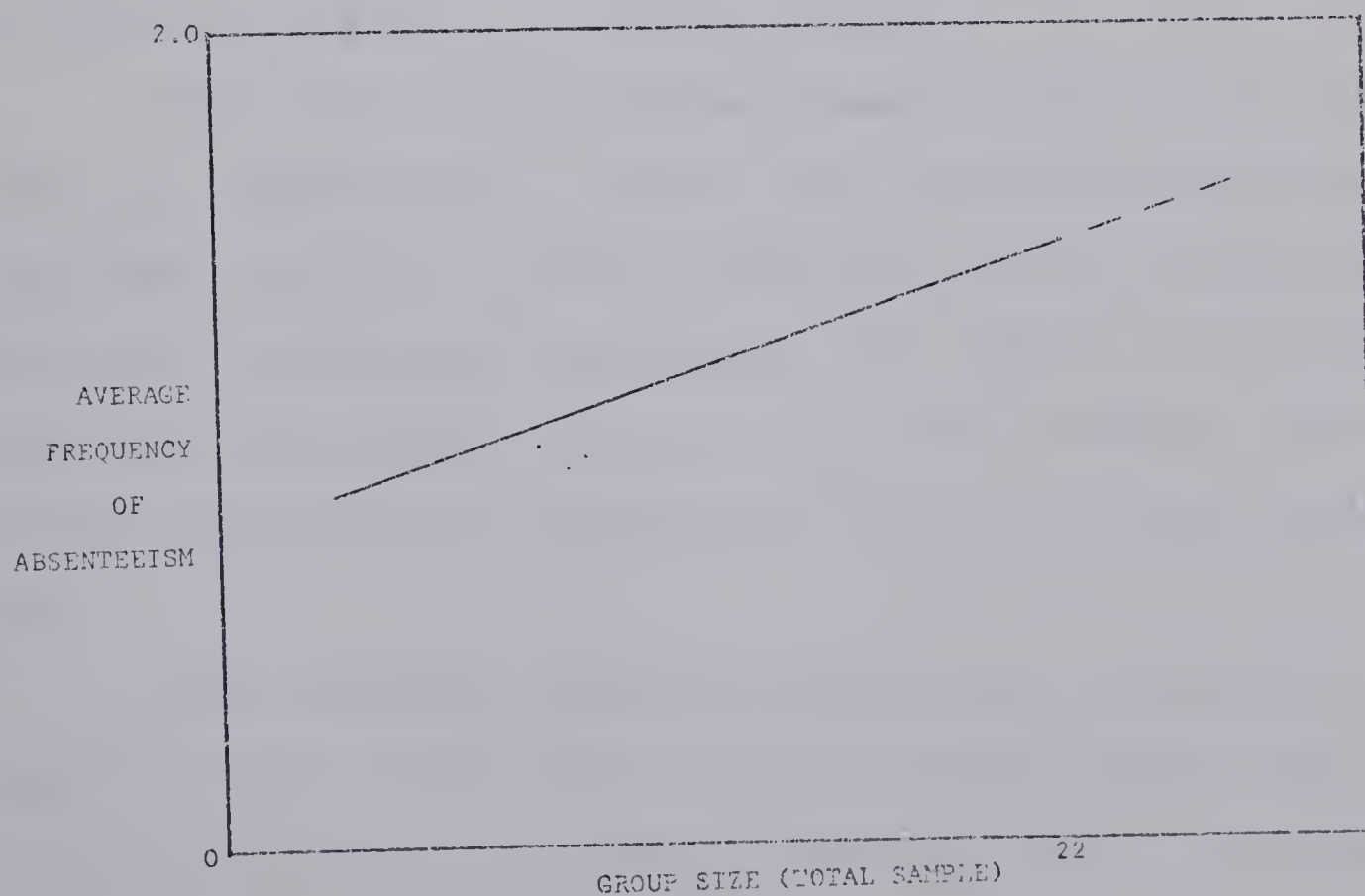
Hypothesis 1

Hypothesis 1 stated that as the size of the work

group increases so does the rate of absenteeism.

In this study, work groups were established in the same manner as they appear on the work schedule. The frequency of absenteeism was calculated for each group and plotted against group size. The result as shown below on Chart III supports this hypothesis.

CHART III



A t-test was applied and resulted in a level of significance of $\alpha = .05$ which is the same as the probability level set by the author. That is, 90% of the time, absenteeism increased with the size of the work group at Algoma Steel. The group sizes ranged from 2 to 22.

t-Test For Group Size and Frequency of Absenteeism

H: $X = Y$
 $\alpha = .05$
t-value = 1.832
t-table = 1.645
(REJECT)

For testing purposes the groups were divided into two units. Groups ranging in size from two to five were designated X while those ranging from six to twenty-two were designated Y. This division was made by the author on the basis of a distinct difference in absenteeism. The groups with six to twenty-two members had a higher rate of absenteeism than those with two to five members.

The past research quoted seems to apply to the situation at Algoma Steel. Given a smaller work group, the individual is able to identify more easily with fellow workers, the group itself, and the company. The smaller work groups also allow the foreman manageability of its members and a two-way communication system which is vital in any organization.

With the above analysis in mind, any organization should be aware of the implications that may appear when workers are continually shuffled from one unit to another or

one department to another. It is more beneficial in the long run to have three groups of eight, rather than one group of twenty-four. Breaking down a large group may require some adjustment at first, but if this is not done, absenteeism or other forms of withdrawal may result.

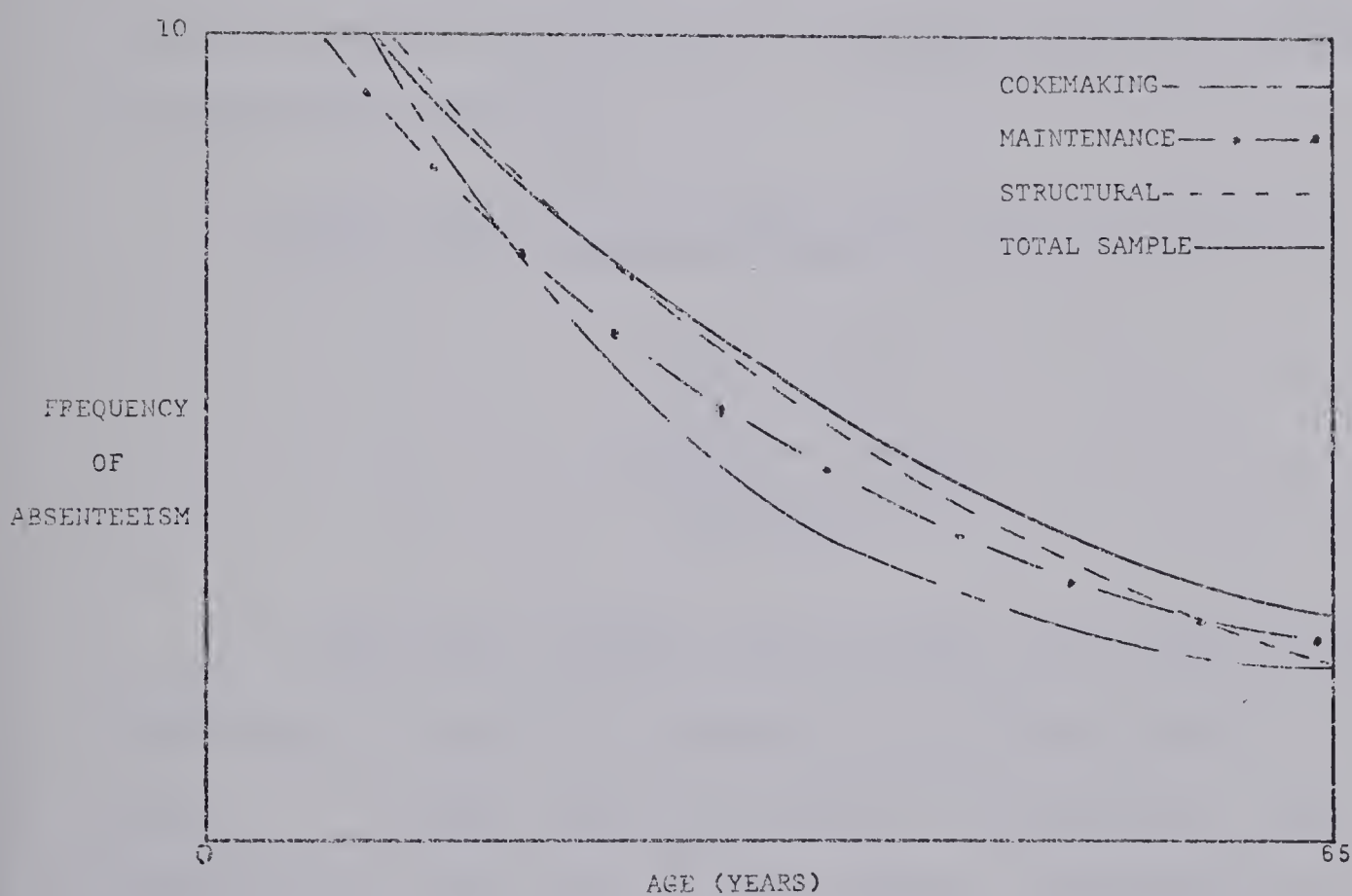
Hypothesis 2

It was hypothesized that as the age of the worker increases, his frequency of absenteeism decreases. That is, an employee will experience a greater number of absences during his younger years.

This study supported the above hypothesis in that the frequency of absenteeism was greater for the younger employees. Chart IV on the next page illustrates the decline in absenteeism as the age of the worker increases. It should be noted that the slope of the curve is relatively the same for all three departments as well as the total sample.

The past research quoted in Chapter I presented evidence supporting and dispelling the hypothesis that age and absenteeism are inversely related. The results of this study show that age does affect the attendance habits of a worker at Algoma Steel. It was observed during the process of collecting data, that the older worker tends to be off a longer period of time when he is absent but his frequency of absences was much lower than the younger worker. The age span on the chart represents workers from 18 to 65 years old.

CHART IV



Even though the older worker may miss longer periods of time, he is not as damaging as the worker who only misses one day at a time. When an employee is absent for three or four days, supervision can calculate the time he will be off and make suitable arrangements. When an employee misses one day per week and continues this habit, work schedules are disrupted and supervision may not be equipped to fill a

position for only one day. When this happens, the work is left or it may be distributed to other employees causing extra costs or discontent.

A t-test was used in arriving at a level of significance of .0005. This means that 99.9% of the time age does affect absenteeism at Algoma Steel. With this in mind, management must not only accept the fact that a worker's attendance will get better as he gets older, but should initiate some program aimed at improving the attendance of the younger employee.

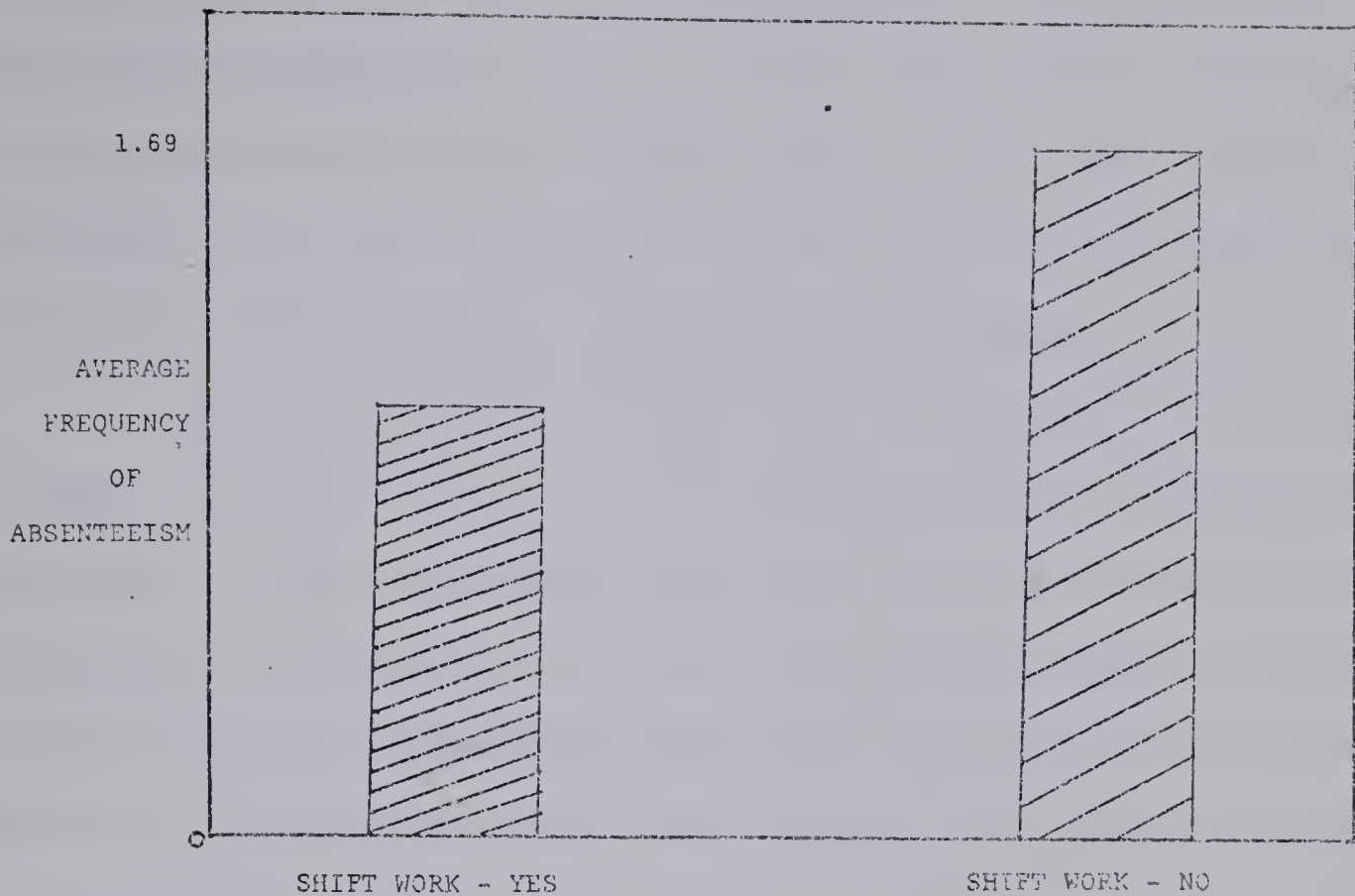
t-Test For Age and Frequency of Absenteeism

H: $X = Y$
a = .05
t-value = 3.55
t-table = 1.645
(REJECT)

The total sample was divided into two groups with those aged 18 to 35 in group X and those aged 36 to 65 in group Y. It was found that the "a" factor was less than the probability level set by the author. Therefore, it can be stated that the relationship between age and absenteeism did not happen by chance but does show a definite relationship to absenteeism.

Hypothesis 3

It was hypothesized that those employees working a shift work schedule exhibit less absenteeism than those on



a steady day shift. Based on this hypothesis, it was found that those on shift work had an average frequency of absence of 1.04. Those not on shift work had an average frequency of absenteeism of 1.69. Chart V above illustrates the difference in absence rates of the two classes.

The calculated t-value was 1.486 while the t-table value for $\alpha = .10$ was 1.282. Thus, 80% of the time we can be sure that shift work does affect an employee's attendance.

t-Test For Shift Work and Frequency of Absenteeism

H: $X = Y$
 $\alpha = .05$
t-value = 1.486
t-table = 1.645
(ACCEPT)

From the above, it can be observed that the calculated

t-value does not meet the set probability level of .05. It does become meaningful when $\alpha = .10$. Therefore, even though it is beyond the set confidence level, it is the author's view that the results are significant enough for consideration when implementing an absenteeism program.

The past research supporting this hypothesis seems to apply at Algoma Steel. The shift worker has adapted to this type of work schedule and views this as an advantage in attending to his personal life. The disadvantage of working a night shift is offset by being able to utilize the daylight period for attending to personal matters including business and pleasure.

The above evidence is valuable in dispelling speculation of the effects of shift work on employee attitudes and behaviour. An absenteeism program should be aimed at the day worker or the departments employing day workers. These departments should be considered first for implementing a program to alleviate absenteeism.

Hypothesis 4

Hypothesis 4 assumed that as an employee's wage rate increased, so did his rate of absenteeism. In this study, when wages were plotted against the frequency of absenteeism, no trend or significant difference was shown. That is, a person's rate of absenteeism was independent of his wage rate.

The t-test demonstrated that the calculated t-value

does not appear anywhere on the t-table. The results of this t-test and a lack of graphic trends, do not support Hypothesis 4. At Algoma Steel, an employee's attitude toward attendance is not directly influenced by his rate of pay.

t-Test For Wage Rate and Frequency of Absenteeism

H: $X = Y$
a = .05
t-value = .473
t-table = 1.645
(ACCEPT)

For this test employees were divided into two groups with Group X being those with wage rates from \$3.02 to \$3.43 and Group Y being those from \$3.52 to \$4.17. From the above results it is concluded that wage rate and absenteeism show no relationship at Algoma Steel.

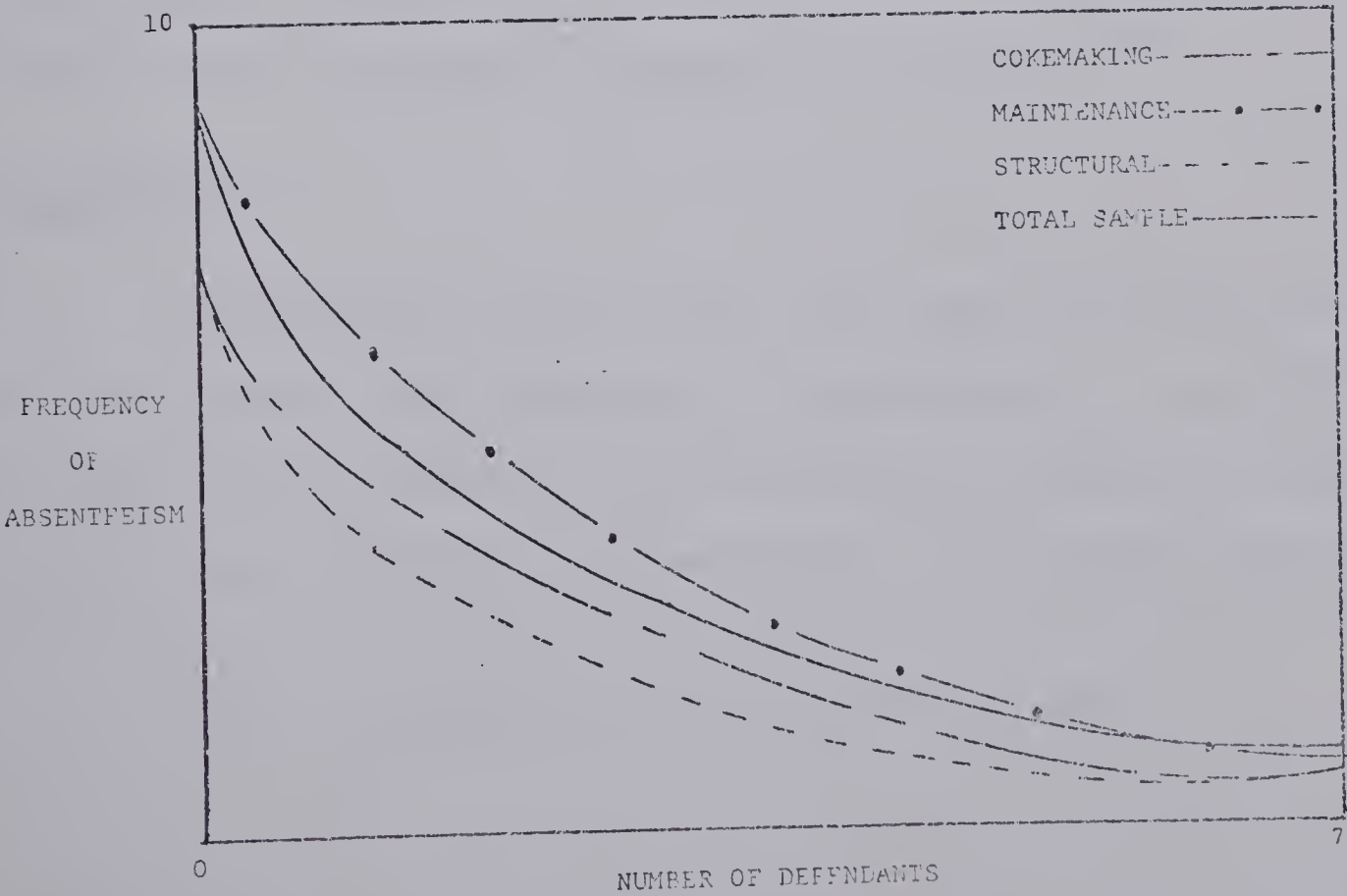
This information seems to contradict the reasoning behind attendance reward plans. Management must realize that by simply increasing an hourly wage, they cannot reduce the rate of absenteeism of the company's employees. A plan to reduce absenteeism must consider other factors besides the monetary one. Whenever hourly wages are increased, it is usually a plant-wide move with every employee's wages increased. The change provides negative results in that each employee's position remains the same in relation to his fellow workers.

Hypothesis 5

It was hypothesized that as a worker's number of

dependants increase, his rate of absenteeism decreases. This inverse relationship proved true for the sample at Algoma Steel. Chart VI illustrates the trend when the number of dependants are plotted against the frequency of absenteeism. It was found that those employees without dependants were absent more frequently and also that as the number of dependants increased, the frequency of absenteeism decreased.

CHART VI



The calculated t-value was 4.731 while the t-table value was 3.291 when $\alpha = .0005$. In other words, 99.9% of the time the number of dependants a worker has will affect his attitude towards attendance.

t-Test For Number of Dependants and
Frequency of Absenteeism

H: $X = Y$
 $\alpha = .05$
 t-value = 4.730
 t-table = 1.645
 (REJECT)

The sample was divided into two groups. Group X consisted of those with zero to three dependants with Group Y consisting of employees with three to seven dependants. From the above it can be observed that the results fell well within the set confidence level of .05.

Contrary to the past research quoted in Chapter I, the frequency of absenteeism at Algoma Steel seems to be declining as dependants increase rather than showing a U-shaped curve as found by Shepherd and Walker.⁵³

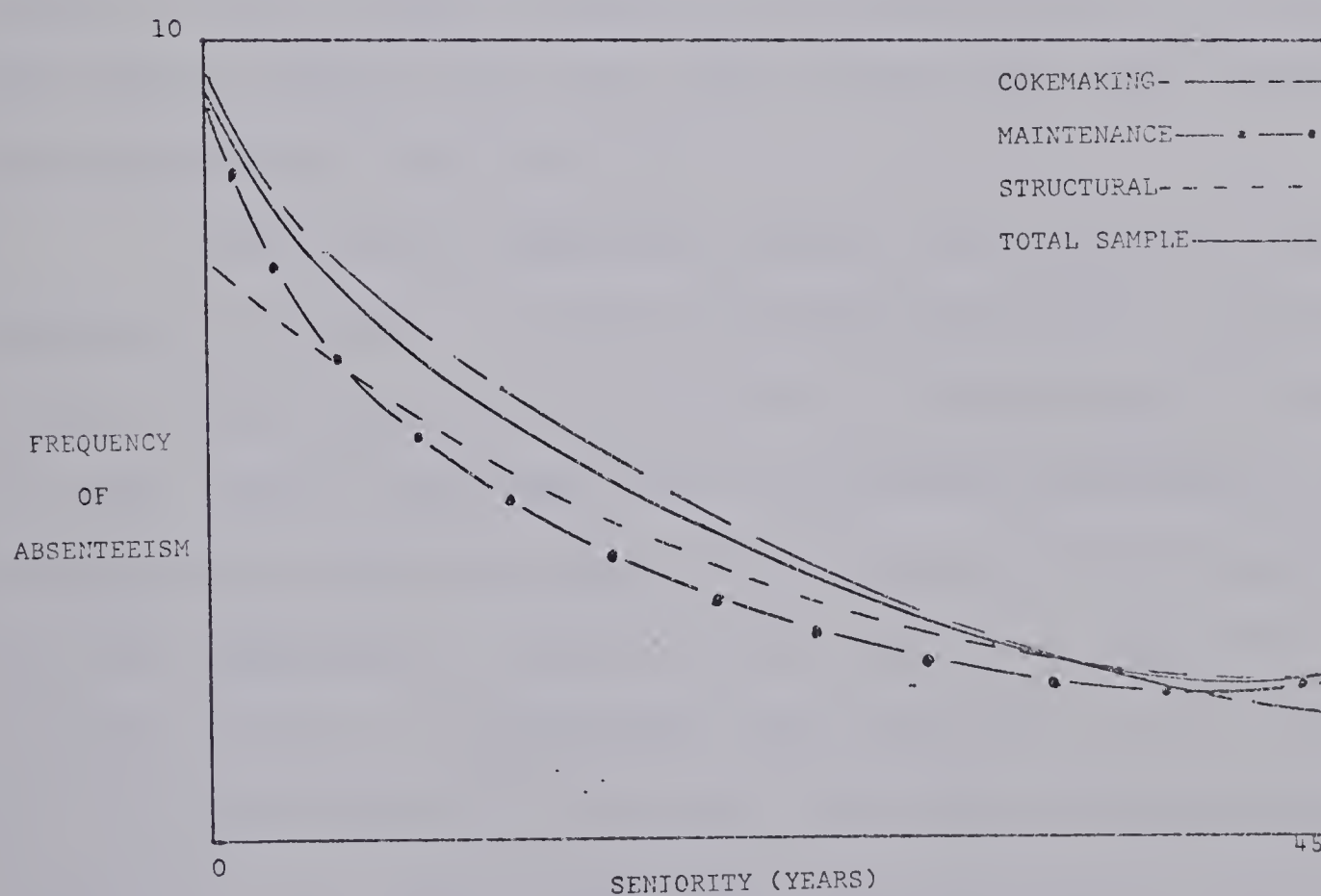
Hypothesis 6

Hypothesis 6 stated that the less seniority a worker has the greater his frequency of absenteeism. Chart VII on the next page illustrates the trend when seniority is plotted against the frequency of absenteeism. All three departments

⁵³R. D. Shepherd and J. Walker, p. 403.

and the total sample illustrated that as an employee accumulates more seniority, his frequency of absenteeism decreases. That is, the worker with less seniority will miss more time than employees with increasing seniority.

CHART VII



The calculated t-value was 2.513 while the t-table value was 2.33 at $\alpha = .01$. Therefore, at Algoma Steel 99.9% of the time, employee seniority influences absenteeism.

t-Test For Seniority and Frequency of Absenteeism

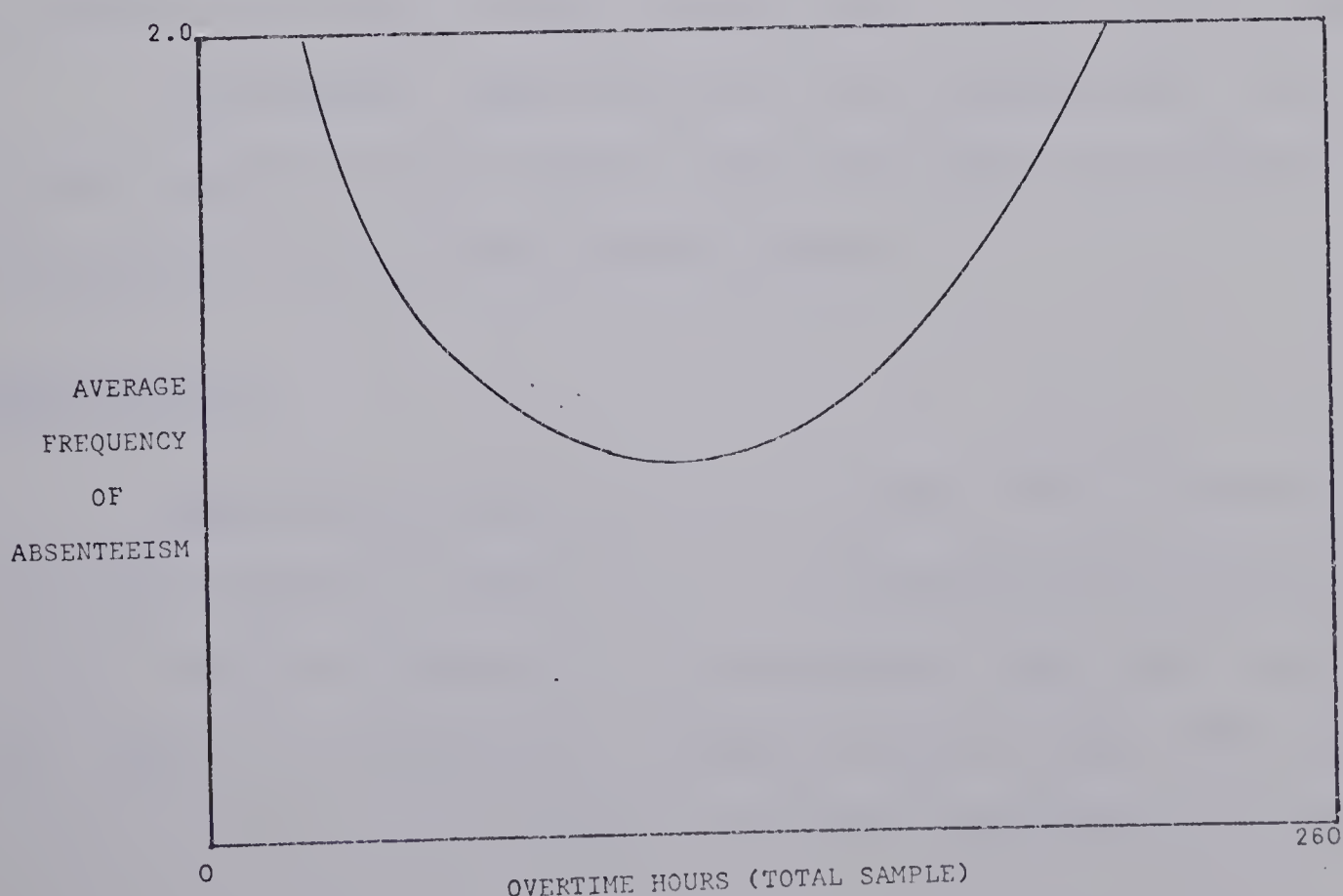
H: $X = Y$
 $\alpha = .05$
t-value = 2.51
t-table = 1.645
(REJECT)

Group X represented those with 0 to 18 years of seniority while Group Y included those with 19 to 45 years seniority. The division was made at this point because Group X had a higher frequency of absenteeism than Group Y. The above results show that the t-value fell well within the set confidence level of .05.

The results described differ from the past research quoted in Chapter I. Past research indicated no relationship in one case, and a curvilinear relationship in another. In this study, the result that absenteeism decreases with accumulated seniority seems to be related to the results for age and dependants (Charts IV, VI, VII). As the worker becomes older, he accumulates more seniority in his place of work, and probably increases his number of dependants. Charts IV, VI, and VII all show the same type of trend for these variables.

Hypothesis 7

It was hypothesized that as a worker accumulates more overtime, his frequency of absenteeism will increase. This was based on the assumption that the employee who works overtime can financially afford to be absent. Chart VIII presented below, demonstrates the average frequency of absenteeism for the total sample. The result is a U-shaped curve where those with low overtime hours and those with high overtime hours were most frequently absent. The average overtime hours worked was approximately 100 hours for the total sample, which falls in the region of the curve where the frequency of absenteeism is the lowest.

CHART VIII

The calculated t-value was 1.09 and the t-table value was 1.036 for $\alpha = .15$. This means that 70% of the time at Algoma Steel, the amount of overtime worked by an employee affects his attendance record. This may be a questionable probability, but the author feels that even at 70% an absenteeism program must account for the distribution of overtime.

t-Test For Overtime and Frequency of Absenteeism

H: $X = Y$
 $\alpha = .05$
 t-value = 1.09
 t-table = 1.645
 (ACCEPT)

This shows that the calculated t-value falls outside the set confidence limit of .05. The above demonstrates the need for management to distribute the overtime to all its employees whenever possible. This will involve a certain amount of record keeping, but in the long run any reduction in absenteeism will be most beneficial to the organization.

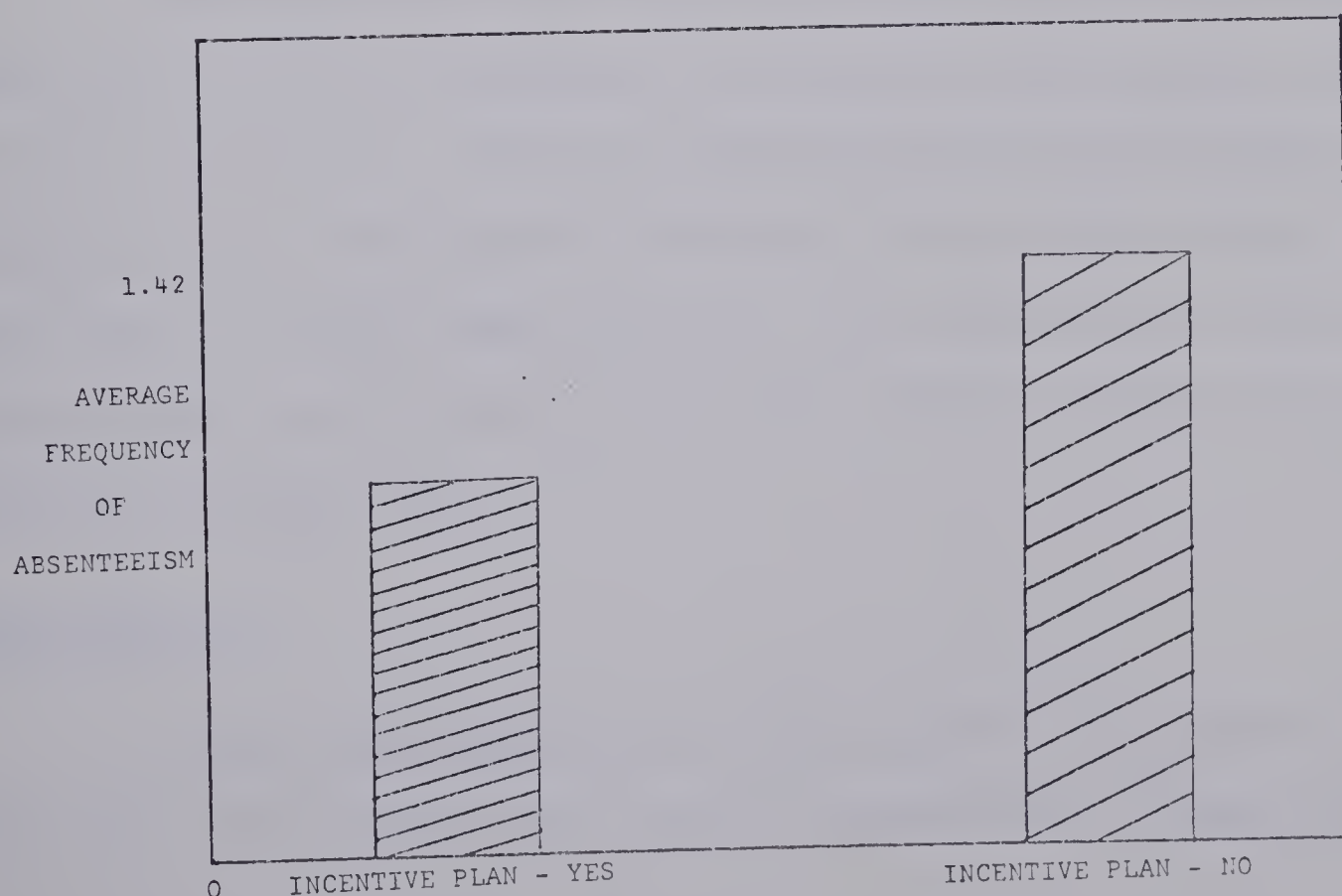
Hypothesis 7 can be said to be unsupported, but it is the feeling of the author that the results are beneficial for structuring an absenteeism program.

Hypothesis 8

Hypothesis 8 stated that a worker on an incentive plan will exhibit a greater rate of absenteeism than one who is not. This was based on the assumption that the incentive plan worker can financially afford to miss time. The results of this study do not support the above hypothesis in its

application at Algoma Steel. The average frequency of absenteeism for those on incentive plans was only .9, while the average frequency of absenteeism for those not on incentive plans was 1.42. Chart IX below illustrates this difference in the average frequency of absences.

C H A R T IX



The calculated t-value was 1.486 while the t-table value was 1.282 where $\alpha = .10$. Therefore, 80% of the time, the institution of an incentive plan at Algoma Steel will result in influencing the frequency of absences.

t-Test For Incentive Plans and Frequency of Absenteeism

H: $X = Y$
 $\alpha = .05$
t-value = 1.486
t-table = 1.645
(ACCEPT)

From the above it can be concluded that at a .05 level of significance, absenteeism and incentives are not related. However, when $\alpha = .10$, the calculated t-value falls within these limits. Even though the above hypothesis is accepted when $\alpha = .05$, it is the author's opinion that the relationship is worth considering when it is demonstrated that incentive plans do effect absenteeism 80% of the time.

The reason for the incentive plan worker exhibiting less absenteeism may probably be traced to the general purpose of incentive plans. Paying incentive encourages workers to increase their earnings by putting a little extra effort into their work to raise their output. It follows that a man who works harder by his own choice isn't likely to throw away his money by missing time.

Hypothesis 9

It was hypothesized that the further an employee lives from work, the greater his rate of absenteeism. When distance

from work was plotted against the frequency of absenteeism, no trend was shown. There was no relationship found between the distance an employee lived from Algoma Steel and his attendance habits. The calculated t-value was .731 while the t-table value was .674 when $\alpha = .25$. On this basis the hypothesis is unsupported in that the frequency of absenteeism and distance from work have no relationship at Algoma Steel.

t-Test For Distance From Work and Frequency of Absenteeism

H: $X = Y$
 $\alpha = .05$
t-value = .731
t-table = 1.645
(ACCEPT)

From the above, it can be seen that the calculated t-value fell far outside the level of confidence when $\alpha = .05$.

This result is in direct contrast to the past research quoted in Chapter I. The geographical location of Algoma Steel may explain this result. The majority of workers live within a radius of five miles from the plant. With this in mind, transportation problems are practically nonexistent for employees. For the present, therefore, any absenteeism program at Algoma Steel does not have to deal with the distance a worker must travel to work.

Hypothesis 10

Hypothesis 10 stated that the higher the level of education among a work force, the greater the frequency of

absenteeism. This was based on the observed comments of Personnel Officers within the organization.⁵⁴ It was their feeling that the high school graduate was discontent to carry out mediocre labour tasks.

When the level of education was plotted against the frequency of absenteeism no trend was shown. The calculated t-value shown below was .261 as opposed to the t-table value of .674 when $\alpha = .25$.

t-Test For Education and Frequency of Absenteeism

H: $X = Y$
 $\alpha = .05$
t-value = .261
t-table = 1.645
(ACCEPT)

For the t-test, all those with a grade 10 or lower level of education were placed in Group X while those with Grade 11 or better were placed in Group Y. From the above results it can be concluded that education and absenteeism demonstrate no relationship at Algoma Steel.

⁵⁴Personnel Officers, Algoma Steel Corp., Ltd.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

To summarize, it was found that the following variables influenced absenteeism:

1. Group Size
2. Age of the employee
3. Shift Work
4. Number of Dependants
5. Seniority
6. Overtime
7. Incentive Plans

The following variables demonstrated no relationship to absenteeism:

1. Wage Rate
2. Distance from work
3. Level of education

Of the seven variables that influenced absenteeism, the following were the most important, in that they were within the .05 level of significance established by the author:

1. Group Size
2. Age of the employee
3. Number of Dependants
4. Seniority

The remaining three variables; shift work, overtime and incentive plans were less significant statistically,

but it is the opinion of the author that they are worthy of consideration in instituting an absenteeism program. Of the variables that are correlated to absenteeism, age, number of dependants, and seniority all indicated the same trend. It was the younger employee with low seniority and few dependants that had the higher frequency of absenteeism. An effective absenteeism program should be directed at this type of employee.

Algoma Steel's present orientation program for new employees is little more than a fifteen minute briefing. At a recent A.M.A. Seminar held in Atlanta, Georgia,⁵⁵ with fifteen various organizations represented, it was noted the orientation programs varied from one-half day to four days in length. The extended orientation program should include representatives from Personnel, Labor Relations, Medical, Employee Benefits, and Safety. A Plant tour or film will give the new employee an insight into the various places of work within a large organization. One company representative at this seminar also explained a "buddy system" that had been utilized.⁵⁶ New employees were assigned for two days to an experienced employee to receive training. With this system in effect management noted an absenteeism rate of only 1.2% as compared to 5% for the whole plant.

⁵⁵A.M.A. Seminar, "Reducing Employee Absenteeism," Atlanta, Georgia, July 27 - 29, 1970.

⁵⁶Ibid.

With the present system of orientation, a new employee at Algoma may be employed at least four months before he attends a formal induction meeting. Under this condition the new employee has no idea what procedures to follow if he really needs time off. Therefore, he may take time off and either be reprimanded or go unnoticed. If he goes unnoticed, this may be the formation of poor attendance habits throughout his work career.

With a better system of orientation the new employee would know the procedures to follow when an emergency arose and would be aware of the penalties that may be assessed if he is continually absent. By knowing the penalties beforehand, the employee will be more reluctant to miss time unnecessarily, especially if he is aware that dismissal from the company may result. A better and improved orientation would concentrate on the preventative aspect of absenteeism.

Management must account for group formation when instituting an absenteeism program. That is, established work groups should not be disbanded and large work groups should be broken down into a manageable size. Foreman or supervisory training is related to this aspect. The most valuable asset any organization has is people. New supervisors must be trained to handle any human problems that may arise. Supervisory personnel must continually be upgraded with regard to new techniques. If first-line supervisors are equipped to handle personnel problems, many minor disturbances can be settled at this level. Foremen should realize the

beneficial results of equitable distribution of overtime and incentive plans. As the results of this study demonstrate, both affect absenteeism if they are not properly managed.

Presently at Algoma, the majority of first-line supervisors have received supervisory training only when they became members of management. It is the opinion of the author that upper management cannot neglect the necessity of upgrading first-line supervision. With the volumes of research being produced every year concerning supervisory skills, it is the duty of management to offer this information through special training courses or seminars. In the area of absenteeism, it is the author's opinion that the results of this study should be presented to first-line supervision. They should be aware of the importance of observing and helping the younger employee and take this as an integral part of their duties rather than assuming that his job is only handing out disciplinary warnings.

When instituting any plan to alleviate absenteeism, Algoma Steel should consider the above seven variables that demonstrated a relationship to the frequency of absenteeism. Management should look at how a plan would affect these variables and how present personnel practices are influencing them. The author feels that the information derived from this research will be valuable in implementing an absenteeism program.

There have been more "unsuccessful" programs in reducing employee absences than those that can be

described as "successful".⁵⁷ The successful programs were derived specifically for each organization.⁵⁸ The object of this study has been to determine the factors that are correlated with employee absenteeism at Algoma Steel. The author realizes that this study like any research does contain certain inherent limitations. The ten variables examined here may only be a small portion of the total number of factors that influence absenteeism. It is a starting point that should provide some basis for further research into this most important problem. One possible area that should be examined is the effect of employee attitudes on absenteeism. It would be interesting to observe the difference in attitudes between the regular worker and the chronic absentee. Another factor worthy of examination is the structure of the organization and its effect on absenteeism.

In the United States, industry loses 1% of its profits for every 1% rate of absenteeism each year.⁵⁹ The financial loss alone indicates the seriousness of the problem. It is the hope of the author that the research performed for this industrial plant will be a starting point for a program aimed at solving this most important problem.

⁵⁷Ibid.

⁵⁸Ibid.

⁵⁹Ibid.

A P P E N D I X A

"PRESENTATION OF RAW DATA"

TABLE 3: COKEMAKING

SAMPLE SIZE: 142

TABLE 4: STRUCTURAL MILLS

SAMPLE SIZE: 88

TABLE 5: CENTRAL MAINTENANCE

SAMPLE SIZE: 100

T A B L E : 3

DEPARTMENT : COKEMAKING

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
1	C	62	Y	3.76	42	13	Y	56	0
1	C	60	Y	3.76	35	11	Y	64	1
3	A	66	Y	3.76	28	8	Y	56	0
0	B	55	Y	3.68	33	10	Y	64	1
0	A	44	Y	3.68	20	8	Y	64	2
3	C	51	Y	3.68	19	8	Y	56	0
0	C	62	Y	3.60	27	2	Y	64	0
1	C	49	Y	3.60	15	12	Y	64	0
0	C	53	Y	3.60	15	10	Y	73	0
0	C	62	Y	3.43	22	10	Y	56	2
1	B	51	Y	3.43	15	8	Y	64	0
0	B	37	Y	3.35	14	7	Y	48	2
4	D	32	Y	3.35	12	9	Y	72	0
0	C	58	Y	3.27	29	8	Y	64	0
0	D	63	Y	3.27	15	8	Y	56	0
2	A	39	Y	3.27	11	8	Y	72	1
2	B	34	Y	3.27	11	10	Y	88	0
2	A	36	Y	3.27	9	10	Y	64	0
0	A	42	Y	3.27	7	7	Y	48	1
2	D	35	Y	3.27	6	8	Y	80	1

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

T A B L E : 3

DEPARTMENT : COKEMAKING

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
4	C	44	Y	3.27	6	7	Y	40	0
2	B	42	Y	3.27	5	8	Y	56	3
8	B	57	Y	3.76	27	8	Y	64	0
1	B	56	Y	3.67	34	8	Y	74	2
1	B	61	Y	3.76	21	7	Y	72	2
3	D	45	Y	3.68	20	7	Y	80	2
5	D	44	Y	3.68	15	8	Y	75	0
2	C	57	Y	3.60	15	10	Y	80	2
1	B	48	Y	3.60	15	8	Y	72	2
2	B	49	Y	3.43	15	8	Y	88	0
3	C	45	Y	3.43	15	8	Y	72	0
3	C	56	Y	3.35	15	8	Y	72	1
1	C	37	Y	3.35	14	5	Y	72	0
1	C	52	Y	3.27	30	8	Y	72	2
3	B	47	Y	3.27	15	8	Y	64	0
1	D	38	Y	3.27	11	8	Y	80	0
2	B	37	Y	3.27	9	7	Y	62	0
3	C	38	Y	3.27	11	11	Y	80	1

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

T A B L E : 3

DEPARTMENT : COKEMAKING

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
2	B	38	Y	3.27	6	12	Y	64	0
0	A	33	Y	3.27	6	8	Y	72	0
2	B	32	Y	3.27	5	9	Y	80	1
2	B	51	Y	3.76	30	9	Y	64	1
3	B	56	Y	3.76	31	12	Y	64	0
5	B	66	Y	3.76	27	8	Y	64	0
4	D	38	Y	3.68	15	11	Y	75	0
3	B	58	Y	3.68	15	8	Y	64	0
3	C	50	Y	3.60	15	8	Y	64	0
2	C	47	Y	3.60	15	9	Y	64	0
3	B	49	Y	3.60	15	8	Y	64	0
1	C	51	Y	3.43	15	5	Y	56	1
1	A	48	Y	3.43	15	6	Y	64	2
1	D	39	Y	3.35	14	6	Y	40	1
0	D	31	Y	3.35	11	10	Y	64	2
0	A	64	Y	3.27	27	8	Y	64	0
5	B	48	Y	3.27	15	7	Y	64	0
1	D	33	Y	3.27	11	8	Y	64	0

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

T A B L E : 3

DEPARTMENT : COKEMAKING

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
0	B	36	Y	3.27	9	8	Y	56	3
1	D	42	Y	3.27	9	8	Y	64	0
0	B	39	Y	3.27	8	8	Y	73	0
4	B	37	Y	3.27	8	7	Y	48	1
1	D	32	Y	3.27	5	10	Y	101	0
4	C	47	Y	3.27	5	5	Y	64	0
1	B	46	Y	3.76	30	11	Y	62	0
3	C	59	Y	3.76	22	11	Y	64	0
4	C	51	Y	3.76	24	8	Y	72	0
4	C	39	Y	3.76	20	8	Y	72	0
1	D	59	Y	3.27	40	11	Y	56	0
2	D	45	Y	3.27	15	8	Y	64	0
0	C	31	Y	3.27	4	11	Y	68	0
0	A	41	Y	3.27	15	8	Y	64	1
1	D	61	Y	3.76	34	8	Y	72	0
5	B	60	Y	3.76	22	10	Y	74	0

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

T A B L E : 3

DEPARTMENT : COKEMAKING

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
2	C	56	Y	3.76	17	10	Y	80	0
2	A	42	Y	3.76	15	11	Y	72	3
2	D	36	Y	3.27	11	8	Y	104	0
3	D	40	Y	3.27	20	8	Y	128	0
0	D	22	Y	3.27	1	12	Y	72	4
2	B	50	Y	3.76	31	8	Y	64	0
1	A	53	Y	3.76	33	12	Y	76	0
1	B	46	Y	3.76	30	11	Y	64	0
3	B	42	Y	3.76	23	7	Y	64	0
3	B	51	Y	3.27	29	9	Y	80	0
1	B	38	Y	3.27	20	9	Y	80	6
3	B	41	Y	3.27	2	8	Y	72	1
4	B	54	Y	3.76	29	9	Y	80	0
4	C	42	Y	3.76	29	9	Y	64	0
3	D	34	Y	3.76	14	8	Y	56	0
1	C	32	Y	3.76	14	11	Y	56	0

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

T A B L E : 3

63

DEPARTMENT : COKEMAKING

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
0	C	30	Y	3.27	7	10	Y	71	6
4	B	41	Y	3.27	23	10	Y	40	0
0	C	23	Y	3.27	2	11	Y	88	0
2	B	55	Y	4.09	31	8	Y	112	4
2	C	42	Y	3.68	23	10	Y	125	0
8	D	56	Y	3.43	21	3	Y	122	0
1	C	56	Y	4.09	30	8	Y	144	1
0	C	51	Y	3.68	20	8	Y	32	0
1	C	48	Y	3.52	23	12	Y	136	0
7	D	57	Y	3.52	23	8	Y	98	1
2	B	54	Y	3.52	35	10	Y	107	0
2	B	57	Y	4.09	35	8	Y	107	0
5	B	53	Y	3.68	33	9	Y	124	0
0	C	20	Y	3.52	1	11	Y	64	1

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

T A B L E : 3

DEPARTMENT : COKEMAKING

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
1	B	36	Y	4.09	8	10	Y	182	3
2	B	50	Y	3.68	30	8	Y	116	2
1	C	62	Y	3.52	26	13	Y	72	0
1	A	61	Y	3.27	30	8	Y	106	1
0	D	58	Y	3.27	20	9	Y	64	0
3	A	66	Y	3.18	30	5	Y	64	0
0	C	28	Y	3.18	8	8	Y	24	8
0	C	30	Y	3.11	4	8	Y	81	1
5	A	54	Y	3.27	24	8	Y	72	0
1	C	53	Y	3.27	20	8	Y	72	2
1	D	40	Y	3.18	7	8	Y	104	0
0	B	32	Y	3.18	5	8	Y	88	0
0	B	23	Y	3.11	2	10	Y	80	7
1	B	55	Y	3.27	15	8	Y	80	0

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

T A B L E : 3

DEPARTMENT : COKEMAKING

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
1	C	34	Y	3.27	15	8	Y	64	1
0	B	58	Y	3.17	19	8	Y	64	2
0	B	31	Y	3.18	5	8	Y	64	5
0	B	24	Y	3.11	2	9	Y	64	2
1	C	46	Y	3.27	23	8	Y	56	2
4	B	55	Y	3.27	15	8	Y	48	0
0	B	46	Y	3.18	15	8	Y	64	7
1	D	47	Y	3.18	12	12	Y	104	2
1	B	62	Y	3.35	33	8	Y	56	0
0	A	61	Y	3.11	45	8	Y	64	0
0	B	26	Y	3.02	7	6	Y	104	0
2	B	58	Y	3.02	15	8	Y	56	0
1	C	60	Y	3.35	35	9	Y	72	0
0	C	31	Y	3.11	11	9	Y	72	2

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

T A B L E : 3

66

DEPARTMENT : COKEMAKING

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
2	C	39	Y	3.02	20	9	Y	72	1
0	A	48	Y	3.02	11	4	Y	72	1
1	B	38	Y	3.35	14	5	Y	65	1
1	C	34	Y	3.11	11	8	Y	64	2
1	B	50	Y	3.02	15	8	Y	72	0
0	B	43	Y	3.02	9	8	Y	64	0
0	A	21	Y	3.02	1	8	Y	48	0
3	C	59	Y	3.35	33	8	Y	64	0
3	D	32	Y	3.11	11	8	Y	64	0
1	C	62	Y	3.02	20	8	Y	64	0
0	A	35	Y	3.02	6	6	Y	64	0
3	C	45	Y	3.02	1	8	Y	40	0

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

T A B L E : 4

DEPARTMENT : STRUCTURAL MILLS

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
2	A	58	Y	3.43	31	8	Y	110	1
2	B	59	Y	3.27	44	8	Y	126	0
3	D	45	Y	3.52	23	8	Y	114	0
6	B	40	Y	3.11	15	8	Y	138	1
0	B	35	Y	3.11	5	11	Y	108	1
2	C	38	Y	3.19	6	8	Y	156	1
3	C	38	Y	3.02	2	12	Y	130	0
0	A	60	Y	3.02	35	8	Y	46	1
3	B	37	Y	3.02	1	8	Y	106	0
2	C	58	Y	3.52	35	8	Y	138	2
1	D	61	Y	3.27	44	8	Y	95	0
1	B	54	Y	3.27	33	8	Y	38	0
4	B	49	Y	3.19	19	10	Y	144	0
0	C	44	Y	3.27	11	10	Y	122	0
0	D	50	Y	3.19	17	8	Y	110	2
4	B	35	Y	3.11	3	8	Y	126	0
0	C	21	Y	3.11	2	10	Y	108	0
0	C	21	Y	3.02	1	10	Y	38	0

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

T A B L E : 4

DEPARTMENT : STRUCTURAL MILLS

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
4	A	50	Y	3.52	31	8	Y	126	0
2	B	59	Y	3.27	34	8	Y	58	1
4	D	46	Y	3.19	29	9	Y	74	0
2	B	47	Y	3.27	15	13	Y	80	1
2	B	42	Y	3.19	8	8	Y	66	3
2	A	40	Y	3.19	6	6	Y	67	1
2	D	47	Y	3.76	30	12	Y	64	1
1	B	38	Y	3.76	19	9	Y	100	2
0	B	38	Y	3.43	20	10	Y	125	1
3	B	38	Y	3.19	15	8	Y	105	0
2	D	41	Y	3.43	15	8	Y	113	1
0	D	43	Y	3.43	14	8	Y	92	6
2	B	40	Y	3.11	5	7	Y	102	9
0	B	28	Y	3.11	4	8	Y	97	0
2	B	56	Y	3.76	31	9	Y	130	0
3	C	44	Y	3.76	28	11	Y	130	2

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

T A B L E : 4

DEPARTMENT : STRUCTURAL MILLS

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
0	B	44	Y	3.76	22	10	Y	93	0
1	B	44	Y	3.19	15	12	Y	106	0
4	C	41	Y	3.43	21	8	Y	100	0
0	D	32	Y	3.43	14	8	N	115	7
0	B	22	Y	3.11	4	8	N	78	8
0	B	21	Y	3.11	2	10	N	83	0
0	B	23	Y	3.11	2	8	N	100	0
0	C	27	Y	3.02	1	10	N	78	1
0	C	21	Y	3.02	1	12	N	61	1
4	B	49	Y	3.76	30	8	Y	145	0
1	B	47	Y	3.76	20	10	Y	63	3
2	B	43	Y	3.43	18	12	Y	103	1
0	B	36	Y	3.43	14	7	N	126	6
0	B	32	Y	3.11	9	8	N	104	4
2	C	52	Y	3.43	15	10	N	108	0
0	B	27	Y	3.43	8	9	N	109	0

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

T A B L E : 4

70

DEPARTMENT : STRUCTURAL MILLS

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
4	B	29	Y	3.43	5	10	N	136	1
3	B	35	Y	3.43	14	12	N	256	0
1	B	30	Y	3.43	5	5	N	176	0
1	D	57	Y	3.43	15	8	N	125	1
4	D	38	Y	3.43	15	3	N	1.31	0
1	B	34	Y	3.43	15	8	N	160	3
0	D	28	Y	3.43	8	7	N	133	1
4	D	38	Y	3.68	20	10	Y	171	1
4	A	52	Y	3.43	33	8	Y	215	1
3	C	30	Y	3.11	2	5	Y	253	1
0	B	20	Y	3.11	1	5	Y	163	6
1	D	34	Y	3.11	1	10	Y	253	2
2	B	46	Y	3.19	15	5	Y	199	0
0	C	23	Y	3.19	1	11	Y	104	0

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

DEPARTMENT : STRUCTURAL MILLS

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
2	C	54	Y	3.68	18	8	6	222	0
2	C	61	Y	3.43	29	8	Y	203	0
0	B	51	Y	3.11	31	11	Y	56	4
0	D	20	Y	3.11	1	12	Y	88	4
0	C	21	Y	3.11	3	12	Y	8	4
0	C	44	Y	3.19	15	8	Y	80	0
1	B	39	Y	3.19	4	7	Y	206	0
0	B	22	Y	3.52	2	8	N	123	1
0	B	21	Y	3.11	2	12	N	56	6
1	C	56	Y	3.43	31	8	N	65	0
1	B	27	Y	3.02	1	12	N	32	1
1	A	61	Y	3.43	42	10	N	89	2
1	B	56	Y	3.35	31	8	N	80	1
7	B	51	Y	3.52	21	8	N	97	1
0	B	51	Y	3.19	29	8	N	126	0
1	B	51	Y	3.19	33	8	N	108	0

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

DEPARTMENT : CENTRAL MAINTENANCE

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
2	B	50	N	4.17	30	8	N	48	3
4	B	39	N	4.17	30	8	N	74	0
3	D	51	N	4.17	14	11	N	56	2
1	D	64	N	4.17	30	8	N	48	1
3	C	43	Y	4.17	19	8	N	83	0
0	C	64	Y	4.17	27	8	N	104	2
3	B	44	Y	4.17	28	10	N	88	0
2	D	35	Y	4.17	15	7	N	94	0
2	B	46	Y	4.17	14	8	N	130	5
1	B	42	Y	4.17	14	8	N	160	4
4	B	44	Y	4.17	23	8	N	40	2
2	B	50	Y	4.17	14	11	N	106	0
3	C	42	Y	4.17	11	12	N	73	3
2	C	37	Y	4.17	11	8	N	88	1
2	C	47	Y	4.17	10	8	N	100	0
0	D	44	Y	4.17	9	10	N	87	3
0	B	32	Y	4.17	7	10	N	72	1
3	D	32	Y	4.17	8	11	N	104	1

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

DEPARTMENT : CENTRAL MAINTENANCE

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
0	D	44	Y	4.17	2	8	N	79	3
0	B	28	Y	4.17	2	8	N	68	2
2	C	27	Y	4.17	2	10	N	73	0
2	D	54	Y	4.17	2	8	N	77	1
1	D	48	Y	4.17	21	10	N	161	4
2	D	36	Y	4.17	3	3	N	77	0
2	B	38	Y	4.17	3	3	N	67	1
0	B	35	Y	4.17	5	9	N	38	0
2	B	39	Y	4.17	6	13	N	104	1
2	C	53	N	4.17	23	9	N	56	0
2	A	56	N	4.17	19	12	N	136	2
0	B	46	Y	4.17	4	12	N	102	1
3	C	51	Y	4.17	31	8	N	65	0
0	C	50	Y	4.17	28	9	N	41	0
4	B	32	Y	4.17	14	10	N	129	0
3	D	49	Y	4.17	6	9	N	110	1

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

DEPARTMENT : CENTRAL MAINTENANCE

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
2	D	50	Y	4.17	2	7	N	111	2
4	D	42	Y	4.17	23	10	N	64	2
2	B	46	Y	4.17	28	8	N	95	1
4	C	50	Y	4.17	24	8	N	56	0
2	C	49	Y	4.17	15	12	N	56	2
0	B	42	Y	4.17	1	12	N	102	0
0	B	20	Y	4.17	2	12	N	0	0
0	C	29	Y	4.00	2	11	N	152	0
1	D	22	Y	4.00	1	12	N	137	0
4	B	38	Y	4.00	15	8	N	177	0
5	D	31	Y	4.00	1	8	N	40	0
4	C	52	Y	4.00	19	9	N	80	2
0	C	61	Y	4.00	19	8	N	168	0
2	D	39	Y	4.00	9	11	N	136	3
0	D	25	Y	4.00	5	12	N	129	0
0	C	39	Y	4.00	5	10	N	68	0
0	C	53	Y	4.00	5	12	N	120	1
2	B	37	Y	4.00	5	9	N	114	0

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

T A B L E : 5

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DEPARTMENT : CENTRAL MAINTENANCE

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
3	C	43	Y	4.00	5	12	N	160	0
4	D	41	Y	4.00	1	11	N	64	0
5	D	31	Y	4.00	1	8	N	39	1
7	B	43	N	4.00	21	9	N	75	0
5	D	44	N	4.00	19	8	N	64	0
6	C	51	N	4.00	19	9	N	67	0
0	C	54	N	4.00	15	11	N	16	2
2	B	38	N	4.00	13	12	N	71	0
4	C	56	N	4.00	35	8	N	64	1
6	C	51	N	4.00	18	11	N	80	1
3	B	46	N	3.84	20	8	N	111	1
1	B	39	N	3.84	20	9	N	74	0
0	C	26	N	3.84	3	13	N	49	1
0	C	49	N	3.84	11	11	N	72	0
0	C	33	N	3.84	5	12	N	120	0

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

DEPARTMENT : CENTRAL MAINTENANCE

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
4	B	42	N	4.09	23	8	N	108	1
3	B	41	N	4.09	18	8	N	107	1
1	C	45	N	4.09	20	10	N	64	3
0	D	38	N	4.09	15	9	N	157	0
4	C	35	N	4.09	1	9	N	153	0
1	B	34	N	4.09	15	8	N	68	2
5	B	42	N	4.09	15	8	N	142	0
0	B	25	N	4.09	4	11	N	108	1
0	C	34	N	4.09	15	8	N	116	4
0	C	35	N	4.09	15	8	N	64	11
1	D	40	N	4.09	14	8	N	141	2
0	B	22	N	4.09	2	12	N	166	1
0	C	35	N	4.09	11	9	N	97	2
0	B	36	N	4.09	11	9	N	214	4
0	C	39	N	4.09	11	8	N	128	4
0	D	38	N	4.09	15	8	N	142	3
1	B	36	N	4.09	8	10	N	182	4
0	B	26	N	4.09	7	10	N	110	0
0	C	28	N	4.09	7	10	N	81	4

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

DEPARTMENT : CENTRAL MAINTENANCE

NUMBER OF DEPENDANTS	DISTANCE TO WORK**	AGE	SHIFT WORK YES - NO	WAGE RATE	SENIORITY	EDUCATION	INCENTIVES YES - NO	ACTUAL OVERTIME HOURS	FREQUENCY OF ABSENTEEISM
0	C	29	N	4.09	4	12	N	109	2
1	D	55	N	4.09	17	11	N	115	3
1	D	56	N	4.09	31	8	N	62	1
0	C	58	N	4.09	30	10	N	94	1
1	C	38	N	4.09	19	9	N	129	6
0	B	41	N	4.09	19	9	N	60	3
3	D	38	N	4.09	17	9	N	106	4
2	D	36	N	4.09	18	8	N	130	0
2	D	43	N	4.09	19	10	N	146	2
3	D	37	N	4.09	15	8	N	140	0
3	D	44	N	4.09	15	6	N	58	1
0	B	63	N	4.09	30	11	N	68	2
3	B	44	N	4.09	23	11	N	117	0
0	C	57	N	4.09	22	10	N	118	0

**Distance To Work: A= 0-1 miles B= 1-2 miles C= 2-5 miles
D= 5+ miles

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